

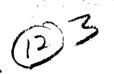
AFOSR-TR- 81-0808

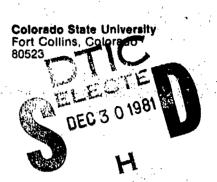
Department of Mathematics 303/491-6326



representative and appropriate the second second

U. S. Air Force Contract F-49620-79-C-0124 DATA FITTING 1 July 1979 - 30 September 1981 Principal Investigator: G. D. Taylor





During the above period the following articles written with grant support have been published or accepted for publication:

- 1. "Continuity of best reciprocal approximation on $[0, \infty)$ ", J.Approx.Theory, 30 (1980), 71-79 (co-authored with C. Dunham).
- 2. "Uniform approximation by rational functions having restricted denominators", accepted J.Approx.Theory (co-authored with E. Kaufman).
- 3. "On the existence of strong unicity of arbitrarily small order", Approximation Theory III, E.W.Cheney, ed., Academic Press, 1980, pgs 293-298 (co-authored with B.L.Chalmers).
- 4. "Uniform rational approximation by differential correction and Remesdifferential correction", Int.J.for Numer.Meth.in Eng., 17 (1981), 1273-1280 (co-authored with E.Kaufman and D.Leeming).
- 5. "Copositive Rational Approximation", accepted J.Approx.Theory (co-authored with N.Seif).

The following manuscripts written with grant support have been submitted to technical journals for publication:

- 1. "A unified theory of strong uniqueness in uniform approximation with constraints", submitted to J.Approx.Theory (cc-authored with B.L.Chalmers).
- 2. "Strong unicity of arbitrary rate", submitted to J.Approx. Theory (co-authored with B.Chalmers and F.Metcalf).
- 3. "An adaptive differential correction algorithm", submitted to J.Approx. Theory (co-authored with E.Kaufman and S.McCormick).

The following manuscripts representing research partially supported are currently being prepared for submission to technical journals:

- 1. "Reciprocal polynomial approximation subject to linear constraints", in preparation (with B.Chalmers, E.Kaufman, D.Leeming).
- 2. "Reciprocal polynomial approximation on $[0, \infty)$ with nonnegative coefficients", in preparation (with E.Kaufman and D.Leeming).

The following research projects receiving partial support have been completed.

1. Numerical testing of the uniform and restricted range adaptive curve fitting packages, M.S. Thesis, Colorado State University, Spring, 1980, written by James A. Pastoor, directed by Professor Taylor. Mr. Pastoor is currently employed at Hughes Aircraft Corporation, Denver.

Approved for public release; distribution unlimited.

407344

81 12 29 028



- 2. Numerical study of the sensitivity of the ℓ_1 - ℓ_2 adaptive curve fitting package, M.S. Thesis, Colorado State University, Spring, 1980, written by Jane E. Pastoor, directed by Professor Taylor. Mrs. Pastoor is currently employed at Hughes Aircraft Corporation, Denver.
- 3. Numerical testing of a curve-fitting package utilizing cubic splines, M.S. Thesis, Colorado State University, Summer, 1980, written by Roberta C. N. Okada, directed by Professor Taylor. Miss Okada is currently employed at Lockheed Aircraft Corporation, Sunnyvale, California.
- 4. An adaptive piecewise curve-fitting package using a look-ahead strategy, M.S. Thesis, Colorado State University, Spring, 1981, written by David C. Platt, directed by Professor Taylor. Mr. Platt is currently employed by Martin-Marietta Corporation, Denver, Colorado.
- An adaptive application of a shape-preserving spline curve fitting routine, M.S. Thesis, Colorado State University, Summer, 1981, written by Chung-Chie George Chow, directed by Professor Taylor. Mr. Chow is currently employed by a small seismographic software company in Dallas, Texas.

The following two projects that received partial support from this contract are now being brought to completion:

- 1. Data fitting: a survey of existing data sets in the general literature. This will be the topic of a M.S. Thesis paper written by Eileen Fritz.
- 2. An adaptive application of a monotone preserving cubic spline package. This will be the topic of a M.S. Thesis paper written by Judy Lee.

Gerald D. Taylor, Principal Investigator -F-49620-79-C-0124

k11

AIR FORGE CHANGE OF STANDING PROBARCH (APSC) NOTICE OF A THE ANALYSIS OF A STANDING PROBARCH (APSC) OF A STANDING PROBARCH (AP

Toolnical information pertons

Accession Ford

NTIS GRAAI:
DTIC TAB

Uninterpretation

By
Distribution/
Availability fodes

The Continuation

Distribution

Availability fodes

REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM
AFOSR-TR. 8 0 8 0 8 2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER .
TITLE (and Subtitie)	5. TYPE OF REPORT & PERIOD COVERED
FINAL SCIENTIFIC REPORT F49620-79-C-0124	FINAL, 1 JUL 79 - 30 SEP 81
	6. PERFORMING ORG. REPORT NUMBER
· AUTHOR(s)	8. CONTRACT OR GRANT NUMBER(1)
Gerald D. Taylor	F49620-79-C-0124
PERFORMING ORGANIZATION NAME AND ADDRESS	10. PROGRAM ELE IENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
Department of Mathematics	1
Colorado State University	PE61102F, 2304A3
Fort Collings CO 80523	
1. CONTROLLING OFFICE NAME AND ADDRESS	12. REPORT DATE
Directorate of Mathematical & Information Sciences	SEP 1981
Air Force Office of Scientific Research	13. NUMBER OF PAGES
Bolling AFB DC 20332	2
4. KONITORING AGENCY NAME & ADDRESS(It different from Controlling Office)	15. SECURITY CLASS. (of this report)
	UNCLASSIFIED
	154. DECLASSIFICATION DOWNGRADING
6. DISTRIBUTION STATEMENT (of this Report)	
7. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from	om Report)
and the second of the second o	
18. SUPPLEMENTARY NOTES	
-a. adi-Legendi Mili Molea	
19. KEY WORDS (Continue on reverse side if necessary and identify by block number	r)
	•
	· . /
IQ. ABSTRACT (Continue on reverse side if necessary and identify by block number,	<u> </u>
	Ase.
This report lists articles written under support of been published or accepted for publication, manuscripts currently being to technical journals, and research rojects which	ripts submitted to technical ing prepared for submission
and have been completed.	recerved par crar support.

DD 1 JAN 73 1473 EDITION OF : NOV 65 IS OBSOLETE

UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE (When Date Entered)